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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,049	02/10/2006	Thomas Ebner	14219-110US1 P2003,0640 U	2962

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EXAMINER	
HAMILL, ERIC R	

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2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,049	EBNER, THOMAS	
	Examiner	Art Unit	
	ERIC R. HAMILL	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1 and 4-12* is/are allowed.

6)☒ Claim(s) *2,13-16 and 18-20* is/are rejected.

7)☒ Claim(s) *3 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2-10-06, and 10-2-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: For claim 2, page 3, line 2, "target functional cell" lacks antecedent basis.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: page 13, Line 1, "SSI" and "SSC" are not found in the drawings. Also the acoustic track **AT**, referenced many times, including page 11 of the specification, is labeled "AS" in Fig. 1 instead of –AT--. Appropriate correction is required.. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or

"New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 2, it is unclear if the recitation "a center frequency of the filter *exciting the SAW*" is a correct characterization because it is the transducer, or physical part of the device, which excites a surface acoustic wave at a center frequency, not vice versa. Therefore, Claim 2 will be interpreted as "…comprising an acoustic track to pass a SAW at a center frequency of the filter; …."

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2, 14, 16, and 18-20 are being rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Pub No 2002/0158715) in view of Bergmann (US Patent No 6,777,855).

Regarding claim 2, Nakamura teaches a surface acoustic wave (SAW) filter (Abstract) comprising: a transducer (Fig. 1, transducer 102) comprising an acoustic track (Fig. 1 is an acoustic track) to pass a SAW [0089], a center frequency of the filter exciting the SAW (the filter has two center frequencies corresponding to lamda*d and lamda*s [0089], see also [0094]); wherein the acoustic track comprises cells along a longitudinal direction of the acoustic track (Fig. 1 has unidirectional and bidirectional cells [0089] comprising of electrodes 104 and 105, respectively), each cell comprising electrode fingers (Fig. 1), the cells comprising different cell types (Fig. 1 has unidirectional and bidirectional cells [0089]) , where a cell type is defined by a connection sequence of electrode fingers of a cell (The cells have a connection sequence, or configuration, of unidirectional or bidirectional [0089]); wherein at least some of the cells are functional cells (the cells function as bidirectional or unidirectional [0089]), each functional cell for exciting and/or reflecting the SAW (the unidirectional cells inherently function as reflective, and the bidirectional cells inherently function as exciting; see also [0008-0009] describing the function of unidirectional and bidirectional cells); wherein the functional cells comprise at least two functional cells (fig. 1 shows five functional cells/electrodes labeled 104 and 105), each of

the at least two functional cells comprising at least one wide electrode finger and at least one narrow electrode finger (See Fig. 1 and Fig. 2a, [0091]), where a wide electrode finger is an electrode finger having a width that is greater than a width of a narrow electrode finger (See Fig. 1 and Fig. 2a, [0091]);

Nakamura fails to teach a SAW filter wherein a reflective strength of a target functional cell is configurable by changing a width of an electrode finger in the target functional cell but by maintaining an overall width of the target functional cell substantially constant.

Bergmann teaches that the reflective strength (Col. 1, line 65-66) of a target functional cell (Col 1, line 64) is configurable by changing a width (Col. 1, line 65) of an electrode finger (Col. 1, line 65) in the target functional cell but by maintaining an overall width of the target functional cell substantially constant (Col. 1, line 64-66, the disclosed cell width, lambda, doesn't change).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have adjusted the reflective strength in Nakamura's cells by changing the width of an electrode finger, while maintaining the overall cell length, as taught by Bergmann, since Bergmann suggests that this provides the benefit of making it possible to model a transducer with a desired reflection distributed over the transducer (Col. 2, lines 1-2).

Regarding claim 14, Nakamura further suggests that the functional cells comprise functional cells having more than one cell type (unidirectional and

bidirectional) and that are scaled differently (see [0096] suggesting unidirectional cell lamda*d be greater in length than bidirectional cells lamda*s).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have scaled the cells in the above combination differently, as suggested by Nakamura, since Nakamura suggests that scaling, or having the uniderctional cells longer than the birectional cells, equalizes the center frequencies of the device and improves the attenuation characteristic s and in-band flatness [0096].

Regarding claim 16, Nakamura further teaches a filter wherein electrode fingers of a functional cell comprise an electrode finger group (Fig. 1 has unidirectional and bidirectional cells [0089] comprising of electrodes 104 and 105, respectively, with their own finger patterns, Fig. 1), and wherein the functional cells (Fig. 1, electrodes 104 and 105) comprise at least two functional cells having a same cell type (Fig. 1, shows three cells **104** that function as the same unidirectional type; And cells 105 that function as the same bidirectional type) and having electrode finger groups with configurations that are substantially identical (Fig. 1);

and wherein the functional cells comprise first (Fig. 1, first electrode from left 104), second (Fig. 1, second unidirectional electrode/cell 104 from left, and right of electrodes 105), third (Fig. 1, first electrode 105 from left) and fourth (Fig. 1,second electrode 105 from left) functional cells,

and wherein a final electrode finger of the first functional cell (Fig. 1, last finger of first electrode 104) and an initial electrode finger of the second functional cell (First finger of second electrode cell 104) define a distance that is different (In Fig. 1, since the third and fourth functional cells 105 are between functional cells/blocks 104, the corresponding distances between the final fingers and initial fingers of blocks of the same type will always be different) from a corresponding distance in the third (Fig. 1, first electrode/block 105 from the left) and fourth (Fig. 1, second electrode/block 105 from left) functional cells.

Regarding claim 18, Nakamura further teaches a filter wherein the functional cells comprise functional cells having a same cell type (Fig. 1, shows three cells/blocks 104 that function as the same unidirectional type; And cells/blocks 105 that function as the same bidirectional type) and four electrode fingers per functional cell (In Fig. 1, all of the cells have four electrodes fingers each).

Regarding claim 19, Nakamura fails to clearly suggest a filter wherein the functional cells comprise functional cells having three electrode fingers (Fig. 23A), at least one of the three electrode fingers being a wider electrode finger (Fig. 23A), the wider electrode finger being wider than another of the three electrode fingers (Fig. 23A), and wherein a width of the wider electrode finger is about 3.lamda./8 (Fig. 23A [0009]), where .lamda. is a wavelength.

However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the basic section of an electrode in Fig. 23A, which has a wide electrode finger of 3*lambda/8, in the filter of Nakamura, since Nakamura suggests that this configuration provides the benefit of unidirectionality in the right direction [0009].

Regarding claim 20, Nakamura further teaches a filter wherein at least one cell comprises an electrode finger having a width of about **m.lamda./16** or having a width that, at most, deviates from m.lamda./16 by .+-.20%, where m is an integer, and where .lamda. is a wavelength (Fig. 2B shows an electrodes 207, which should be labeled 105 [0093], with a narrow electrode finger width of lambda*s/8, where lambda*s is the wavelength of the bidirectional electrode; this corresponds to M.lamda./16 when m is equal to 2) .

8. Claims 13 and 15 are being rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Pub No 2002/0158715) in view of Bergmann (US Patent No 6,777,855), and further in view of Ueda (US Patent No 7,071,796)

Regarding claims 13 and 15, Nakamura, as modified by Bergmann, teach all of the limitations of claim 2 above.

Nakamura, as modified by Bergmann, fails to teach a filter wherein the functional cells comprise at least two functional cells having **a same cell type** and having a same configuration but that are scaled differently, between 0.1% and 20%, in the longitudinal direction.

Ueda teaches a filter (Abstract) wherein the functional cells (Fig. 9 has reflecting block/cell 2-1, and comb electrodes 3-1 and 3-2 comprising blocks/cells Col. 7, line 10-12) comprise at least two functional cells having **a same cell type** (the blocks are all comb electrodes 3-1 and 3-2 with different pitches, Col. 7, lines 9-15) and having a same configuration but that are **scaled differently** (Fig. 9 shows they are scaled with different pitches; Col. 7, line 1; Col. 7, lines 23-28 give an example of these pitches, and P1 and P2 differ by .9669/.9976 which is equal to around 3%) in the longitudinal direction (Fig. 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have scaled cells of the same type, such as scaling the unidirectional cells, differently, as suggested by Ueda, since Ueda suggests that scaling, or having excitation cells with different pitches, provides a continuous phase (col. 6, line 32), resulting in a filter with low insertion loss and wide bandwidth characteristics (col. 3, lines 16-19)

9. Claim 21 is being rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (US Pub No 2002/0158715) in view of Bergmann (US Patent No 6,777,855), and further in view of Kondratyev (US Patent No 5,646,584)

Regarding claim 21, Nakamura as modified by Bergmann, teach all of the limitations of claim 2 for the reasons above.

Nakamura as modified by Bergmann, fail to teach a SAW filter with a second acoustic track in parallel.

Kondratyev teaches a SAW filter wherein the acoustic track (Fig. 2, Abstract) comprises a first acoustic track (Fig. 2, track 10), and wherein the transducer further comprises a second acoustic track (Fig. 2, track 111), the second acoustic track being substantially identical to the first acoustic track (Fig. 2); and wherein the first and second acoustic tracks are **parallel** and electrically interconnected (Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used Nakamura's filter, as modified by Bergmann, with two acoustic tracks connected in parallel, as taught by Kondratyev, since Kondratyev suggests that this configuration creates a filter which beneficially suppresses bulk waves for substantially all frequencies of the device (Col. 2, lines 60-63)

Allowable Subject Matter

10. Claims 1 and 4-12 are allowed.

Regarding claim 1, Nakamura and Bergmann fail to teach a filter wherein the length of the cells corresponding to a phase shift of 2*pie*n, where n is an integer.

11. Claims 3 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, Nakamura as modified by Bergmann, fails to teach a filter wherein a length of a functional cell corresponds substantially to a phase shift of **2 .pi.n** in the SAW excited at the center frequency, where n is an integer.

Regarding claim 17, Nakamura as modified by Bergmann, fails to teach a filter wherein at least some of the cells have a length .lamda./2 and **do not contribute to reflection or excitation** of the SAW, where .lamda. is a wavelength.

Conclusion

12. Any response to this Office Action should be **faxed** to (571) 273-8300 or **mailed** to:

Commissioner for Patents,

P.O. Box 1450

Alexandria, VA 22313-1450

Hand-Delivered responses should be brought to

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22314

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hamill, whose telephone number is (571) 270-1802. The examiner can normally be reached Mon-Fri from 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal, can be reached at (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Hamill

Patent Examiner Art Unit 2817

/BENNY LEE/
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